REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1-14, 16-17, 21-23, 25-43, 45-55, 61, 66, and 68 are pending, of which claims 1, 21, 26, 42-43, 45, 49, and 61 have been amended.

35 U.S.C. §103 Claim Rejections

A.   Claims 1-14, 16-20, 22-24, 26-44, 46-47, 49, and 52-58 are rejected under 35 U.S.C. §103(a) for obviousness over U.S. Patent No. 5,942,707 to Tamura (hereinafter, "Tamura") in view of U.S. Patent No. 5,842,014 to Brooks et al. (hereinafter, "Brooks") (*Office Action* p.2). Applicant respectfully traverses the rejection.

B.   Claims 21, 25, 45, 48, 50-51, and 59-69 are rejected under 35 U.S.C. §103(a) for obviousness over Tamura and Brooks, and further in view of U.S. Patent No. 5,852,251 to Su et al. (hereinafter, "Su") (*Office Action* p.9). Applicant respectfully traverses the rejection.

Tamura describes a system that includes music data, a MIDI input interface, and a sound source that processes MIDI events and stores the processed data with memory buffers (*Tamura* cols.1-7). The system described in Tamura is essentially described in the background of the subject application as a conventional audio and music generation system described with reference to Applicant's Fig. 1 (*Specification* p.5, line 4 to p.7, line 17). For example, a synthesizer 102 (e.g., Tamura's sound source) receives MIDI inputs 120 on

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synthesizer channels 108 and outputs processed audio data to an audio buffer 106 (*Specification* p.5, lines 4-13).

Claim 1 recites (in part), a method comprising:

    providing audio rendition managers that each correspond to an audio rendition, an audio rendition manager including a synthesizer component, audio buffers, and logical buses that each correspond to one of the audio buffers;

    routing the audio instructions to the audio rendition managers that process the audio instructions to render the corresponding audio renditions;

    processing the audio instructions with the synthesizer component to generate multiple streams of audio wave data;

    assigning each of the multiple streams of audio wave data to one or more of the logical buses where a logical bus receives one or more of the streams of audio wave data from the synthesizer component; and

    routing audio wave data streams assigned to a particular logical bus to the audio buffer corresponding to said particular logical bus.

Claim 1 is amended herein to include features recited in claims 19 and 20 (now canceled). Tamura and/or Brooks do not teach or suggest multiple audio rendition managers, or an audio rendition manager that includes a synthesizer component, audio buffers, and logical buses, as recited in claim 1.

The Office states that a "sound source" in Tamura designates an audio rendition component with a DSP (digital signal processor) which is a synthesizer component (*Office Action* p.2). However, a "sound source" in Tamura is not an audio rendition manager, as recited in claim 1. Rather, Tamura describes a "sound source" as a synthesizer component which is described in the background of the

subject application (*Specification* p.5, lines 4-13). For example, Tamura describes that a sound source module processes MIDI events (col.1, lines 26-38). Being that Tamura describes a "sound source" as a synthesizer component, a "sound source" is not an audio rendition manager that includes a synthesizer component, audio buffers, and logical buses, as recited in claim 1.

Additionally, the Office recognizes that Tamura does not teach a plurality of audio rendition components (*Office Action* p.2). The Office cites Brooks for multiple digital signal processors (DSPs) to process digital audio signals (*Office Action* pp. 2-3). As described above, a digital signal processor is not an audio rendition manager, as recited in claim 1. Further, Brooks does not teach an audio rendition manager that includes a synthesizer component, audio buffers, and logical buses, as recited in claim 1.

With regards to the features recited in claims 19 and 20 (now canceled and incorporated in claim 1), the Office cites to Tamura for storing a waveform in a memory location and sequentially retrieving the waveform from the memory location to reproduce a music tone (*Office Action* p.6; *Tamura* col.4, lines 21-24). The Office also cites to the same section of Tamura (col.4, lines 21-24) for "assigning each of the multiple streams of audio wave data to one or more of the logical buses", as recited in claim 1.

For reference, Applicant describes multiple logical buses of a multi-bus component where a logical bus routes audio wave data received from any number of synthesizer component channels to an audio buffer (*Specification* p.23, lines 13-17; p.25, lines 9-12; Fig. 4). The cited sections of Tamura do not teach that a logical bus can receive one or more multiple streams of audio wave data from the

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synthesizer component, as recited in claim 1. The Office does not cite to Brooks for these features recited in claim 1.

Accordingly, claim 1 is allowable over the Tamura-Brooks combination for at least these reasons and Applicant respectfully requests that the §103 rejection be withdrawn.

Claims 2-14, 16-17, and 22-23 are allowable by virtue of their dependency upon independent claim 1. Additionally, some or all of claims 2-14, 16-17, 22-23, and 25 are allowable over Tamura and/or Brooks for independent reasons. For example:

Claim 2 recites "each audio content component is a component object having an interface that is callable by a software component, the software component directing said generating the event instructions."

Tamura and/or Brooks do not teach or suggest an audio content component that is a component object having a callable interface, as recited in claim 2. The Office states that Tamura teaches hardware and software implementations are analogous, and that Brooks teaches multiple processors can be called to perform tasks (*Office Action* p.3; *Tamura* col.1, lines 26-31). Tamura only describes that a sound source module can be a hardware device or a software sound source which a CPU executes as a program (*Tamura* col.1, lines 26-31). There is no indication in Tamura that a software sound source is an audio content component that is a component object having a callable interface, as recited in claim 2.

The Office also states that "it is inherent that the processors are callable by software" (*Office Action* p.3). For the sake of discussion only, this statement even if true is not a basis to substantiate a rejection of an audio content component that is a component object having a callable interface, as recited in claim 2. A "callable processor" does not teach or suggest a component object having a callable interface.

Accordingly, claim 2 is allowable over the Tamura-Brooks combination and the §103 rejection should be withdrawn.

Claims 3 and 4 recite "each audio rendition manager is a component object having an interface that is callable by a software component." As described above in the response to the rejection of claim 2, Tamura and/or Brooks do not describe any such component objects in an audio generation system that have a callable interface, as recited in claims 3 and 4. Accordingly, claims 3 and 4 are also allowable over the Tamura-Brooks combination and the §103 rejection should be withdrawn.

Claim 5 recites "providing a performance manager that performs said providing an audio content component for each source of audio content, and performs said providing the audio rendition managers that each correspond to an audio rendition."

Tamura and/or Brooks do not show or disclose a performance manager as recited in claim 5. The Office states that Tamura teaches the use of software to instantiate a plurality of audio rendition managers, and that Brooks teaches processors dedicated to specific tasks (*Office Action* p.3; *Tamura* col.6, lines 28-32; col.19, lines 61-64; Brooks col.4, lines 47-49). Applicant disagrees

because the cited sections of Tamura do not describe a performance manager, an audio rendition manager, or a plurality of audio rendition managers.

Tamura only describes a hard disk to store waveform data, an operating system, and various application programs (*Tamura* col.6, lines 28-32). There is no indication whatsoever of a performance manager or of an audio rendition manager as recited in claim 5. Further, claim 7 of Tamura only describes an apparatus that includes a player module, a driver module, a sound source module, and a timing module (*Tamura* col.19, lines 61-64). Neither of these modules listed in Tamura is a performance manager that provides one or more audio rendition managers, as recited in claim 5, and neither of these modules listed in Tamura is an audio rendition manager, as recited in claim 5. Further, a dedicated processor in Brooks is also not a performance manager that provides one or more audio rendition managers, as recited in claim 5.

Accordingly, claim 5 is allowable over the Tamura-Brooks combination and the §103 rejection should be withdrawn.

Claims 21 and 25 are allowable by virtue of their dependency upon independent claim 1 which is allowable over Tamura and/or Brooks for at least the reasons described above in response to the rejection of claim 1 (claim 25 is dependent upon claim 21). Claim 21 is also allowable over the Tamura-Brooks-Su combination because Su does not address the deficiencies of Tamura and/or Brooks as described above in the response to the rejection of claim 1.

Specifically, claim 21 recites that:

the synthesizer component includes multiple channel groups, each channel group having a plurality of synthesizer channels to receive the audio instructions, and wherein the audio rendition manager includes a mapping component having mapping channels corresponding to the plurality of synthesizer channels;

the method further comprising:

assigning the mapping channels to receive the audio instructions; and

routing the audio instructions to a particular synthesizer channel in accordance with the mapping channel assignments.

Tamura, Brooks, and/or Su do not teach or suggest an audio rendition manager that includes "a mapping component having mapping channels corresponding to the plurality of synthesizer channels", as recited in claim 21. The Office only cites to Brooks for the mapping component (*Office Action* p.10; *Brooks* col.7, lines 23-26). However, Brooks only describes a time-division multiplexing (TDM) bus to connect digital signal processors (DSPs). A time-division multiplexing bus is not a "mapping component having mapping channels", and there is no indication of "mapping channels corresponding to the plurality of synthesizer channels", as recited in claim 21.

Accordingly, claim 21 is allowable over the Tamura-Brooks-Su combination for at least this reason and Applicant respectfully requests that the §103 rejection be withdrawn.

Claim 26 recites (in part), a method comprising:

audio rendition managers that each correspond to an audio rendition, each audio rendition manager including a synthesizer component that receives the audio instructions and generates audio wave data, one or more audio buffers that process the audio wave data, and logical buses that each correspond to one of the audio buffers, each audio rendition manager:

assigning the audio wave data to one or more of the logical buses that each receive one or more streams of audio wave data from the synthesizer component; and

routing the audio wave data assigned to a particular logical bus to the audio buffer corresponding to said particular logical bus to render the corresponding audio renditions.

Claim 26 is amended herein to include features recited in claim 44 (now canceled). As described above in the response to the rejection of claim 1, Tamura and/or Brooks do not teach or suggest multiple audio rendition managers, or that the audio rendition managers include a synthesizer component, audio buffers, and logical buses, as recited in claim 26. Further, Tamura and/or Brooks also do not teach or suggest logical buses that each receive one or more streams of audio wave data from the synthesizer component, as recited in claim 26.

Accordingly, claim 26 is allowable over the Tamura-Brooks combination for at least these reasons, and Applicant respectfully requests that the §103 rejection be withdrawn.

Claims 27-43 and 46-47 are allowable by virtue of their dependency upon independent claim 26. Additionally, some or all of claims 27-43 and 46-47 are

allowable over Tamura and/or Brooks for independent reasons, such as described above in response to the rejection of claims 2-5.

Claims 45 and 48 are allowable by virtue of their dependency upon independent claim 26 which is allowable over Tamura and/or Brooks for at least the reasons described above in response to the rejection of claims 1 and 26 (claim 48 is dependent upon claim 45). Claim 45 is also allowable over the Tamura-Brooks-Su combination because Su does not address the deficiencies of Tamura and/or Brooks as described above in the response to the rejection of claims 1 and 26.

Claim 49 recites (in part), an audio generation system comprising:

the audio rendition manager having processing components including:

    a synthesizer component having multiple channel groups, each channel group having a plurality of synthesizer channels configured to process the audio instructions to generate audio wave data;

    a mapping component having mapping channels corresponding to the plurality of synthesizer channels, the mapping component configured to designate the synthesizer channels that receive the audio instructions via the respective mapping channels;

    one or more audio buffers configured to process the audio wave data; and

    a multi-bus component that defines logical buses corresponding respectively to the one or more audio buffers, the multi-bus component configured to receive the audio wave data at the defined logical buses, and route audio wave data that is received at a particular logical bus to the audio buffer corresponding to the particular logical bus.

Claim 49 is amended herein to include features recited in claims 59 and 60 (now canceled). As described above in the response to the rejection of claim 1, Tamura and/or Brooks do not teach or suggest multiple audio rendition managers, or that an audio rendition manager includes a synthesizer component, a mapping component, one or more audio buffers, and a multi-bus component that defines logical buses, as recited in claim 49. Further, Tamura, Brooks, and/or Su do not teach or suggest a mapping component having mapping channels corresponding to the plurality of synthesizer channels, as recited in claim 21.

Accordingly, claim 49 is allowable over any combination of Tamura, Brooks, and/or Su for at least these reasons, and Applicant respectfully requests that the §103 rejection be withdrawn.

Claims 50-55 are allowable by virtue of their dependency upon independent claim 49, and are allowable over Tamura and/or Brooks for the reasons described above in response to the rejection of claims 1 and 49. Additionally, claims 50-51 are also allowable over the Tamura-Brooks-Su combination because Su does not address the deficiencies of Tamura and/or Brooks as described above in the response to the rejection of claim 49.

Claim 61 recites (in part) an audio rendition manager comprising:

> a synthesizer component ...;
> an additional synthesizer component ...;
> a mapping component having mapping channels corresponding to the synthesizer channels and the additional synthesizer channels, ...; and
> a plurality of audio buffers that receive one or more of the streams of audio wave data.

As described above in the response to the rejection of claims 1 and 21, Tamura, Brooks, and/or Su do not teach or suggest an audio rendition manager that includes a synthesizer component, an additional synthesizer component, a mapping component, and a plurality of audio buffers, as recited in claim 61. Further, Tamura, Brooks, and/or Su do not teach or suggest a mapping component having mapping channels corresponding to synthesizer channels, as recited in claim 61.

Accordingly, claim 61 along with dependent claims 66 and 68 are allowable over the Tamura-Brooks-Su combination for at least these reasons, and Applicant respectfully requests that the §103 rejection be withdrawn.

Conclusion

Pending claims 1-14, 16-17, 21-23, 25-43, 45-55, 61, 66, and 68 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. If any issues remain that preclude issuance of this application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

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